

Zur Frage

über die

Identität von Croup & Diphtheritis.

Inaugural-Dissertation,

welche

unter Zustimmung der hochlöblichen medicinischen
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Nachdem Herr P a r r ein mündliches und schriftliches Tentamen vor dem Decan, sowie das Examen rigorosum vor versammelter Facultät in deutscher Sprache abgelegt und bestanden, bei dem Exam. rigorosum auch über den Inhalt seiner Dissertation in deutscher Sprache geprüft worden, beschliesst die Facultät, den Druck der Inaugural-Dissertation in englischer Sprache ausnahmsweise zu gestatten.

Schmidt-Rimpler
d. Z. Decan.

Choice of Subject. The choice of a subject for a dissertation must always present great difficulties to the „general-practitioner“ in the absence of any epidemic which, by the number of cases seen in rapid succession, will in some measure compensate him for the disadvantage he is at in not having at hand the resources for observation afforded by hospital practice.

I propose in this paper to discuss the question of the unity or duality of the diseases associated with membranous deposits on the Fauces, in the Larynx or Trachea. I have been led to choose this subject by a*) lecture delivered by Sir William Jenner and reported in „the Lancet“ of the 2nd & 16th of January 1875, in which numbers also appeared a lecture**) by Dr. George Johnson on a similar subject; and by a***) case read by Mr. R. T. Parker and followed by a discussion at the Royal Medico-Chirurgical Society, which I have hereafter related.

Cases. I shall begin by taking the following cases from my note books, jotted down in a more or less imperfect manner from the time I was a student.

*) „On Croup and the diseases that resemble it.“ Sir W. Jenner. Lancet. January 2:16:1875.

**) „On certain points relating to the Etiology, Pathology & treatment of Diphtheria.“ Dr. Johnson. Lancet same date.

***) „Scald of the Glottis, with Deposit of False Membranes in the Pharynx, Larynx and Bronchi.“ — Clinical Society. Lancet, 1. May 1875.

Case 1. I saw the following case as a student. A child 18 months old was brought to the hospital with the history that she had not long recovered from measles. She had been well enough to be out on the previous day. Although sunny the wind was blowing keenly from the East, & in the afternoon she was very hoarse. During the evening a harsh loud cough came on & she spent a restless night coughing and tossing about. The symptoms were in the morning so alarming that her mother brought her to the hospital. Ad 11 a. m. no membrane could be seen on the tonsils or any part of the pharynx, which was, however, swollen and very red. The pulse was 140, the breathing loud, laboured, & apparently slow from the prolonged inspiration. There was but little cough & it had a suppressed, muffled sound, & caused a great increase of the dyspnoea. The child remained hardly an instant still, she threw herself about the bed seeking relief. An emetic of Tartrate of antimony with Ipecacuanha was at once administered, & steam from a boiling kettle brought to the bed. No relief was obtained, although some mucus & phlegm came away. When she was seen by the Physicians at 1 p. m. it was at once resolved to open the larynx but before the operation could be performed life was extinct. After death an examination revealed a considerable effusion of lymph in the larynx & upper part of trachea.

Case 2. In January 1869 I had charge, as House-Physician, of the following case under Dr. Fuller, whose tracheotomy tube has been of so much service. — A female servant 26 years of age. Slight sore throat for 5 or 6 days. The day before admission the sides of the neck began to swell very much, the pain in the throat increased & she felt so bodily weak & ill that she could no longer keep about. On admission to the hospital, the glands below the angle of the jaw are found very tender and much swollen. She speaks in a thick, rough whisper, and brea-

thes (with a noise very similar to the voice) keeping the mouth well open. The tongue lying forward on the teeth as far as the lower lip is seen to be thickly coated with creamy yellow fur. The pulse is 120, compressible. The skin very hot; no cough. The tonsils & uvula are found to be covered with a grey membrane ending abruptly in the surrounding reddened mucous membrane. The tonsils meet in the median line, but on causing a little straining by introducing the spatula further into the throat, they open & the back of the pharynx is seen covered with thick mucus & (?) some membrane. The nasal discharge is increased, but is apparently healthy."

Dr. Fuller asked me to use the spray apparatus with the *Liquor Potassae Permanganatis* of the British Pharmacopoeia. (4 grains of the salt to 1 ounce of water.) This was effectually done & was repeated every six hours. The effect on each occasion was an immediate improvement of the voice & a relief to the breathing, consequent on the removal of some of the membrane, & seemingly some contraction of the swollen surfaces. After a couple of applications the membrane on the back of the pharynx was well seen. The general treatment consisted of a mixture every 4 hours containing Tincture of Perchloride of Iron 20 minims, Sulphate of Quinine 2 grains, Chlorate of Potash 15 grains, Hydrochloric Acid 15 minims. Beef tea & milk were ordered to be given plentifully and 8 ounces of Port wine a day.

The following morning the water was found to be highly albuminous and to contain numerous fine casts. The pulse had not improved. The bowels had acted. The throat was clearer, the tonsils no longer met & the membrane was in parts removed. The breathing was quieter but she was not in her general state any better. The sleep had been disturbed. The wine had been taken, but the food had not been as well persevered with. Two ounces

of brandy & two fresh eggs were however added. The treatment was continued for 3 days by which time a great improvement had taken place in the throat, but the general state was such as to cause great anxiety.

H a e m a t u r i a had appeared, & the quantity of urine having much increased the amount of blood passed was considerable. With this unusual symptom there was extreme weakness of the heart's action. The pulse 60 small & of no power. The wine was increased to 12 ounces. The spray of Permanganate was discontinued & the mixture (with the Chlorate of Potash omitted) was only given every 6 hours. — I was called up to her about 2 a. m. the same night & found the night nurse much alarmed at her condition. I sat with her two hours feeding her with constant small supplies of milk & brandy. From this time, however, strength seemed slowly to return. Convalescence was very slow. The Haematuria did not cease for two months, and she left the hospital after having been an inmate for three months.

Case 3. Not long after this I admitted under Dr Ogle a man of 28 with a very well developed & typical membrane on the right tonsil & the same side of the uvula. There was considerable internal & external swelling of the throat on that side. Swallowing was painful, the voice thick and indistinct, the breathing easy. The sore throat was said to date 3 days back, but he had had cold shivers the day before & felt so ill that he had thought it best to apply at the hospital & on seeing the membrane I at once admitted him. The pulse 120, tongue coated, urine scanty, a trace of albumen. This man by merely opening his mouth was able to exhibit in such a remarkable manner the fauces with the membrane in situ that before using the spray as I had asked Dr. Ogle to allow me to do, Mr. Bishop the house surgeon, at his desire, made a water colour drawing of the affected part. By the time the

drawing was completed he complained of feeling very faint although he had during the time taken two glasses of Port wine. The spray of Permanganate was then used to such effect that but for the drawing those who for the first time saw him the following morning could not have believed him to be suffering from Diphtheria. The general treatment employed was only the Tincture of the Muriate of Iron in full doses & Port wine. He left the hospital well at the end of a fortnight.

Case 4. In January 1870 I had under my charge an infant 6 months old with symptoms very similar to, but less severe than, those described in case I. The ailment could not be assigned to any cause. The cry had been remarked to be hoarse on the previous day & it had suffered from a slight cold. In the morning the cry was almost suppressed & there was occasionally a muffled cough with a distant sound. No external alteration could be discovered in any of the glands of the neck. After administering an emetic of tartrate of antimony which acted well, bringing away some mucus & phlegm in which could be detected fragments of false membrane, I asked Dr. Dickinson, physician to the hospital for Sick Children to see the case with me. The treatment prescribed was Tartrate of Antimony gr. $\frac{1}{8}$, Carbonate of ammonia gr. $\frac{1}{12}$ in syrup & water every hour for six hours & then every 2 hours a grain of calomel was placed on the tongue. The child was ordered to be kept in the small room he was then in & a bronchitis kettle to be kept boiling in the room night and day. The mothers milk to be drawn & the child to be fed with it until he could nurse again.

We were gratified to find that by the help of the means employed improvement was steady & more rapid than could have been hoped. On three occasions the matters vomited contained membranous particles. The cough became looser on the third day, the breathing easier. The

medicine was gradually given less frequently until it was replaced on the 5th by Ipecacuanha wine, ammonia & the liquid extract of Cinchona.

Case 5. In March 1870 I saw the son, 3 years of age, of a farrier. The child had been out playing the same day (early) in the yard. I was summoned about 7 p. m. The family of 7 persons lived in two close and ill ventilated rooms over a stable. Late on the evening of the 3rd I found the child with rapid, sibilant breathing; hoarse cough & voice. The respiratory murmur over the chest was all but inaudible from the harsh sound of the breathing.

The face flushed, the eyes suffused, the nasal secretion increased, skin hot & dry, pulse 136. The glands below the jaw could be just felt and were apparently a little tender. The fauces looked angry, red, glistening — the throat very irritable the child impatient of restraint but at the further part of the right tonsil there was a patch of either adherent secretion or of false membrane in an early state. The child was heavy, drowsy, but he was not suffering much from want of air. An emetic of antimony and Ipecacuanha had to be repeated & the second brought away a quantity of phlegm & mucus — no membrane could be discovered, but the vomiting was followed by great relief.

The treatment ordered was to place the child's cot near the fire on which a large kitchen kettle was kept boiling. $\frac{1}{8}$ of a grain of antimony was given every 2 hours. On the 4th the breathing was quieter, less noisy, the cough was looser & commencing rales could be heard at the back of the lungs. The water passed was free from albumen. Sickness had occurred twice. I asked to have the vomited matters kept for me. Hydrargyri Subchloridi gr. ii jalapine gr. ii at night. To continue the mixture. On the 5th there was evident improvement. The skin had a slight moisture, the harsh character of the cough was gone. The bowels had

acted well & the child had vomited once. In the mixture of mucus & water were several well marked shreds of membrane. The steaming was continued on the 6th and the antimony repeated every 3 hours. On the morning of 7th I found the rash of measles appearing thickly over the body. In other respects the child had further improved. For another 24 hours I continued the medicine every 4 hours. The antimony was then replaced by Ipecacuanha & ammonia to relieve the slight bronchitis present. Three of the other children suffered from Measles, which appeared during the following week, but from no throat affection.

Case 6. In the case of a boy 12 months old under my care in the following winter, I congratulated myself on the promise of an equally fortunate result of a similar plan of treatment. I left the child one morning much relieved; the cough was becoming looser, the breathing more free & the case altogether most hopeful. I received about midday a pressing and alarming summons and though I went immediately I found the child had expired some time before I reached the house. I was told that while laughing with his mother the child had been seized with a suffocative cough and that after a convulsive spasm he had instantly expired. To make the case clear to the parents I pressed them to allow me to examine the larynx & trachea. The Larynx was clear, in the rima glottidis I found a piece of thick mucus in which was entangled a piece of false membrane, this by its partly valvular & partly irritating action had led to the final spasm which extinguished life. The trachea showed no sign of having been affected & in all probability another couple of hours would have placed the little sufferer beyond all danger.

Case 7. September 13th 1874, I was asked to see a little girl 5 years of age. I found her drowsy; skin very hot; breathing rapid, snuffling, but no sign of laryngeal

impediment. The pulse 130. The glands of the neck tender & so much swollen as to give the idea of early mumps. The tonsils, uvula & adjacent parts of the soft palate irregularly covered with three patches of grey membrane. The breath very offensive. The nose discharging a good deal of stringy mucus, which was also hanging about the fauces. The child was reported to have been in her usual health certainly three days before. I at once syringed the throat thoroughly with the Permanganate solution & ordered full doses (10 minims) of the Perchloride of Iron every three hours with Chlorate of Potash. Wine, soup & milk were ordered for nourishment; a calomel & jalap purge at night. Although the mother had so little control over the child that the medicine was only taken at my visits, when also I syringed the throat, yet it was evident on the 15th that the local disease had not spread & that it was now beginning to yield. The urine, which had been very scanty & had hitherto been passed with the loose stools, was now found to be highly albuminous. Not only did the child refuse her medicine from her mother, but she took her food so badly from her, that I pressed her to allow me to engage a nurse, but in vain. On the 19th the throat affection was completely mastered but her general state caused me so much anxiety that I asked to be allowed a consultation with Dr. Dickinson (who saw case 4 with me) He saw her on the 21st & his opinion was „if the child dies, it will be from starvation.“ The necessity for firmness now became so evident to the mother that she allowed a sick nurse to be engaged. After the nose had been held a few times, the child found that the food had to be taken and preferred to take it quietly to being forced to do so. The urine continued albuminous. On the 24th the child was taking better, but I was told that the milk had been noticed more than once to return by the nostril. However she swallowed well in my pre-

sence. On the 25th I saw the milk return in the manner described & ordered a nutrient enema. The parents would not allow it to be administered. On the 27th they allowed it to be tried as the child was evidently now sinking. A most painful scene ensued. She screamed most violently & directly afterwards, before we could prepare for what she was going to do, she threw herself from the bed on the floor, & passed back the enema. It was not repeated. The following morning the face was observed to be puffy & swollen. General anasarca rapidly set in and she died on the 30th of the same month after lying several hours comatose.

Case 8. The evening she died I was sent for to see her sister 2 years of age. The elder sister had been isolated at the top of the house, but the little thing had once or twice crept up to her sister's room after her mother, who had taken her in to see her in spite of my warnings. I found her hoarse, the throat red & swollen, the left tonsil showing a patch of very white membrane. This I syringed for two days & ordered iron & Chlorate of Potash as in the last case. The syringing was continued as a precaution for a week. The child got rapidly well.

Case 9. During the past inclement April, I went to see a boy 8 years old, whom I found sitting on his mother's knee, fully dressed. She said that for a few days he had not seemed so well as usual, had not played about so much, had not eaten as well, & had complained of a stiff neck. The morning I saw him, she had noticed a foulness of breath which had almost turned her sick & on looking into his throat was surprised to find it all white. To my surprise, (he seemed so well in himself, amusing himself with a picture book) I found the tonsils & uvula completely covered with a grey white membrane & a little swollen. The breathing was so quiet that it would not have been sufficient to attract my notice to the throat.

The glands at the angles of the jaw were enlarged as were those down the neck. He could swallow well & had drunk plenty of milk during the morning. The pulse 110. The skin not very hot. He was ordered to bed. The mother told not to kiss him, & warned of the danger of infection. The treatment was by the Permanganate Spray, Perchloride of Iron, food & wine. The urine was not albuminous. He made a good recovery. The throat was clear at the end of 8 days. He was able to leave London for the seaside at the end of three weeks.

Case 10. I received a telegram to go to an old friend, a lady of 48, living out of London. Before I could start a second telegram arrived to say that she was dead. From the physician who attended her I learned, that she had been to see a little boy (also under his charge) of whom she was very fond, her godchild; the boy died 3 days after her visit of Diphtheria. To induce the little fellow to take his medicine, she had taken him out of bed & on to her knee. The following day her throat was sore & a patch appeared on one tonsil. The treatment had been the local application with a brush of a strong solution of Chlorinated soda & the Muriate of Iron internally. She had been able to swallow food plentifully & had taken large supplies of stimulants. The throat symptoms had not given much trouble & so little danger was apprehended that her friends living at a distance were not apprised of her situation until the 10th day. Her strength had seemed much shaken, and the heart now suddenly failed. She could, however, hardly be persuaded that she was in any danger. She repeated several times (I was told): „It is only weakness, it will pass off again.“ She died conscious to the last.

General remarks. I have wished to present a fair and general idea of the affections which I have seen accompany membranous exudations of the Pharynx and air

passages. I feel, however, that collecting all of which I have any notes, however scanty, I do not find one which does not naturally fall into one of two classes. To remedy this I had at first taken a couple of cases with less sharply defined outlines from the well known memoirs of Bretonneau. His book however is so well known, & such cases are so generally met with — although I regret that I am unable to recite one — that I have thought it better, in a paper written for the purpose this is to serve, to confine myself strictly to my own experience unless a well authenticated case can during the course of the remarks I wish to make illustrate or clear up any point. I have also avoided including among these cases any in which I have not myself ascertained the presence of membrane; no case therefore of simple laryngitis is among them, nor cases of sore throat sometimes accompanying scarlet fever, or occurring in houses where scarlet fever was present among those who have previously, had the fever — of such sore throats I have seen many, they are frequently very puzzling, sometimes very red & angry looking, sometimes presenting mucous exudations, or ash coloured depressed ulcers, looking as if they had been recently touched with nitrate of silver. I have not personally attended any case exhibiting the extreme features of the disease, in which the whole fauces are involved and the bodily prostration so extreme that death occurs in the 48 or 72 hours from the first attack; seemingly from the effects of a shock similar to that experienced at the onset of some cases of virulent scarlet fever. (This occurred to two ladies of my acquaintance.) These cases are now happily rare. The same must be said of the epidemic form, the last outbreak having occurred in the huts, the married soldiers quarters, on Woolwich Common. The first case was reported on the 11th Nov. 1874 & by the 21st of that month 15 children had been attacked, of whom 12 had died. The

inhabitants were then most of them removed, but 4 fresh cases occurred, one adult & 3 children. The huts were then destroyed & the epidemic ceased. Overcrowding & damp were here the evident*) cause of the epidemic.

The severity of the individual case, however, and the absence of epidemic do not affect the question. Nothing is more common than to hear patients & even medical men speak of having „Influenza“. — It is well known at the same time that a case of true Influenza has not been seen in London for nearly 30 years. This is another matter; these isolated, sporadic, cases are as true instances of Diphtheria as ever were described, and we no doubt owe much of the present lower rate of morality to a better ‚reading‘ of the disease & a more rational treatment, as a greater attention to the laws of public health has in many instances cut short an outbreak at the very first onset.

These general conclusions apply equally to the disease whether we regard it as one or two; but in consequence of the divided opinion in England on the subject, the returns of mortality are for from reliable in the information they afford to the statistician. The deaths from membranous affections are returned under Diphtheria & Croup. But while deaths registered from Diphtheria may as a rule be referred to a well known & easily recognized type of disease, the deaths from Croup include, besides those in which the presence of membrane has been actually ascertained, many in which it has been only suspected, and many in which it has been known not to have been formed. Those again who hold the doctrine of the unity of these diseases will return under Diphtheria all cases of membranous or true Croup. To further complicate matters some register cases of „Diphtheritic sore throat“, whatever that may mean. The time seems certainly to have come when

*) Vide Lancet. December 12th 1874.

it would be desirable if possible to clear up this matter by some enquiry such as that proposed last year by the Medico-Chirurgical society a suggestion for which we have to thank Dr. West.

Influence of age. The remark no doubt is obvious that to a great extent the difference of symptoms in the cases I have related is the result of the difference¹ of the age of the patient² of the part affected. Bretonneau said „The same disease is described under two names & it has always presented an assemblage of the same symptoms; but we shall be able to observe that those of malignant angina predominate in young subjects who perish by tracheal strangulation; & that those of gangrenous angina, on the contrary, are more striking in adults, who are more slowly suffocated“ *). The following definition of Croup is given by Squire **). „An inflammation of the larynx and trachea in children, commencing in the air passages..... It induces thickening of the mucous membranes and an altered secretion which may become membraniform or purulent.“

He then gives the following table. Of 100 cases of death from Croup there occurred in each year the number given.

Tables of mortality.

Year	1 st year	2 nd	3 rd	4 th	5 th	6 th to 10 th	all beyond
deaths	13.—	25.—	22.—	16.—	11.—	12.3	0.7.

His definition of Diphtheria on the other hand ***) is: „An acute specific disease characterized by a special inflammation of the mucous membranes, chiefly of the

*) Memoirs on Diphtheria. Bretonneau. Semple's translation. New Sydenham Society London. 1859. Page 35.

**) Reynolds System of Medecine. Vol. I. article on Croup P. 234. London 1866.

***) Ibid. article on Diphtheria P 370.

pharynx and air passages, attended with enlargement of the lymphatic glands, a rapid exudation of fibrine or non-organizable lymph, and its deposit on the surfaces affected“, and (after referring to disorders of the kidneys, & the lesions of innervation, and the asthenia) he gives the following table of 100 deaths to contrast with that I have taken from the article on Croup. Of 100 deaths.

Year	1 st	2 nd	3 rd	4 th	5 th	5 to 10 th	10 th	15 th	15—25	25—35
deaths	0.5	2.—	3.7	6.—	8.—	9.—	6.3	2.5	0.32.	

This again is merely illustrating what Bretonneau states. True, if we are speaking of the same disease, but it marks at least the difference of age in those who are attacked in one of two ways. In reading his memoirs one cannot but be struck by the absence—the entire absence of cases which can be referred to the class we designate as membranous croup. There can be no doubt that from whatever cause it may arise, such cases are much more frequent & a much greater cause of anxiety to the physician in England than in France though far from unknown even there. The difference of climate is a self evident suggestion; a likely cause why children should in our damp climate, & in that of more northern Europe, be more subject to inflammatory affections of the larynx & air passages, but hardly a reason why in a country where diphtheria is frequently met with as Bretonneau has described it, it should in the vast majority of children under five years of age violently attack the larynx & trachea, confine itself to those parts, & fail to cause the serious constitutional symptoms observed in the other class of cases. Throughout the whole of Bretonneau's memoirs on the subject I can only find one case which corresponds to the class of cases we know as Croup:

Case from Bretonneau *). „Case 45 — L. Dezaunay, aged one year, generally in feeble health. In the night of the 23rd to the 24th of January 1826, he had a hoarse cough. On the first day, there was want of appetite; the child continued to suck, but refused any other food; two grains of calomel were given at intervals of two hours; the respiration was sibilant. On the second day the respiration was stridulous & very difficult; the cough was hoarse and became very infrequent, and death followed at 10 O' clock in the morning.“

„At the time of death, the tonsils were neither red nor swollen and we could not discover any white spots on their surface nor upon any point of the pharynx. The group of lymphatic glands which were found below the attachment of the sterno-mastoid muscle, were not sensibly swollen. Did the inflammation develope itself in the first instance in the air tubes?“

Autopsy. An elastic, white, thick, false membrane lined the larynx and trachea and extended as far as into the large bronchi. It was more adherent in the larynx, and afterwards became floating The pharynx, examined with the most scrupulous attention, appeared completely exempt from pellicular inflammation; only in one of the crypts of the right tonsil did we discover a portion of concrete matter, which, perhaps, was not the product of the diphtheritic phlegmasia.“

„The nurse to whom this child had been entrusted, lived near Tours, where for many months, with the exception of the patients admitted to the hospital, there had not been a single subject attacked with Diphtheritic angina. It was not propable that there had existed any communication between the inhabitants of Chesnusson, & those of the Faubourg where this woman lived,..... but on hearing

*) loc. cit. p. 165.

that she was born at Chesnusson & was aunt to case 43 I confess that I was not able to avoid suspecting that malignant Angina might have been transmitted to her nurseling, either by the communication which she might have preserved with her dwelling place, or by that which she might have had with the patients admitted to the hospital, or with the relations or neighbours who had accompanied them. She declared, in fact, that the fear of the contagion hindered her from receiving any one; but in the very terms of her denial, proof was found that she had had communication with several of them."

I have from its great interest copied this case almost verbatim. It is, as I have said, the only case in the memoirs in which the membrane was limited to the larynx & trachea & the pharynx found clear. (Case 26 at P. 98 died of pleurisy, a pellicle was found in the trachea, none in the pharynx) Beyond the fact that a membrane was found what claim has it to be called diphtheria. And how anxiously does not the writer seek about for a possible source of contagion — the nurse is supposed to have given the child the contagion which she, escaping herself, carries from the neighbour or relative of a sick person admitted to the hospital.

But the necessity for not relying only on the presence of a membrane or on its mere locality for diagnosis becomes more evident after a perusal of the following case*) and of the discussion to which it gave rise.

„Scald of the Glottis, with deposit of false membranes in the Pharynx, Larynx, and Bronchi. The patient, a girl aged three years & three months, was admitted into the Hospital for sick

*) Case read by Mr. R. W. Parker at a meeting of the Medico-Chirurgical Society and reported in „the Lancet“ May 1st 1875.

children on March 5th, 1875, under the care of Mr. T. Smith. Six days before admission the child put its mouth to the spout of a kettle boiling on the hob; the mother believed some water entered the mouth, which was immediately spat out. It slept fairly during the night, waking at intervals from pain in the throat; but it could swallow a little milk. On the second day swallowing began to be difficult; & on the third day its breathing became weaker, the voice feebler, and the cough noiseless. When admitted the child was very feeble, had a slightly intermittent pulse (160); marked working of the *alæ nasi*; Respiration 44. There was marked pallor, with lividity of lips, expiration & inspiration were laborious and stridulous, while the voice was quite suppressed; great retraction of the hypochondria & intercostal spaces with inspiration; chest resonant throughout; breathing sibilant anteriorly, but absent at the bases of the lungs. Tracheotomy was performed two hours after admission; but relief was not afforded until two or three pieces of membrane — one tubular — were extracted from the air-passages by means of a feather introduced into the wound. The Trachea was repeatedly cleared out in the same manner and once or twice by suction through a catheter. The child, however got worse, and died within 36 hours from prostration, profuse diarrhoea preceding death. At the post-mortem examination the lips & tongue were natural; two small erosions on the soft palate, at its junction with the hard; a small patch of false membrane on the posterior surface of the uvula, but none on the anterior. The tonsils were small and free from membrane, there was a patch on the posterior wall of the pharynx; and the epiglottis was surrounded by membrane on all sides, it being also swollen and oedematous. The larynx was free from membrane with the exception of a small patch on one ventricle, and there was considerable loss of substance above and below the vocal

cords. The lining membrane of the trachea was red and granular, a condition extending down the bronchi to the third degree & most marked in the right bronchus just below the trachea. There were patches of pulmonary collapse, but no pneumonia and the jugulars were distended with fluid blood. No urine was obtained during life, but that removed from the bladder after death contained a large amount of lithates and traces of albumen, some debris and fragments of casts (?) Mr. Parker stated that the membrane was to all appearances identical with that found in Diphtheria, and in support of its actual identity he adduced the following argumens: — 1st. The comparatively rare occurrence of membranous exudation in cases of scald, there being only two such in the post-mortem records of the London hospital. Dr. Moxon also has only met with two cases (vide *Lancet* 27th February 1875. P. 321) 2nd. — In the large number of cases of scald which recovered, expectoration of false membrane was seldom met with. 3rd. The fact that the parts most exposed to the action of the steam in this case while it was hottest, viz, the lips, tongue, palate & fauces were free from membrane while the tonsils were not even swollen. The glottis, too, must have been spasmodically closed to prevent the entrance of the irritant into the air passages; so that some special condition apart from the direct effects of the scald must be required to explain the formation of the membrane in the deep parts; in fact, he held it to be due to a specific poison acting on an abraded surface and thence spreading by continuity. This condition sometimes obtained in cases of foreign body in the larynx or in cut throat where membranous exudation was occasionally found. But is the inflammation less specific because it follows an injury to a mucous membrane liable to this mucous inflammation? It might be compared to erysipelas following amputation of the breast.

He then proceeded to argue in favour of the identity of Croup & Diphtheria.“

In the discussion which ensued Dr. Dickinson, Dr. Hilton Fagge, Dr. Duckworth, Mr. Barwell, Dr. Greenhow upheld the view of the duality of the two affections. Dr. Yeo & Mr. T. Smith & Dr. Cayley sided with Mr. Parker. Mr. Barwell reported a case of membrane found post mortem in the larynx after a scald.

The causes of the Exudation. The fact however that exudations of lymph may & often do result in these parts from various injuries is no new fact, but one that has been long recognized. Let me shortly take the following instances from a standard work*). In cases of death from inhalation of flame. (P. 289). „The mucous lining of the larynx & trachea is inflamed & shreds of lymph are occasionally seen on its surface The treatment should in all cases be antiphlogistic, calomel being administered in small but frequent doses, as soon as croupy breathing shows the existence of inflammation of the larynx.“ We have here cause, disease & treatment. Speaking of cases of scald of the larynx. (P. 291.) „In some cases where the patient has survived only a few hours, the mucous membrane below the rima is quite healthy; in other cases, where the patient has lived a longer period, the mucous lining of the trachea & bronchi is highly inflamed, the bronchial tubes loaded with a thick, viscid, mucous fluid, and occasionally covered with an adventitious membrane, similar to what is produced in Croup.“ Here too Calomel & tracheotomy are recommended. A case of death from swallowing a quantity of a Solution of Bichloride of Mercury is given (P. 293) & „recent lymph was found lining the mucous membrane of the epiglottis &

*) Holme's System of Surgery. 1st Edit. Vol. 2. Article on „Injuries of the Neck“ by the late Henry Gray. Lond. 1861.

interior of the larynx.“ — In a case of death in which it was supposed a brass button had slipped into the air passages (P. 298) „there was a little lymph upon the mucous membrane of the glottis“.

It is not my wish here to seek a large number of cases, but cases which will exhibit the presence of exudation from the most various causes; for, if in all these cases, & in idiopathic croup, & in diphtheria we have one & the same disease, (as is above contended) then we come to the new & startling fact, — that diphtheria may be caused by contagion; by exposure to cold, to damp, to inhaled flame, to steam & boiling water; by swallowing sulphuric acid, Bichloride of Mercury & other corrosive poisons; and by various injuries, such as cut throat. However startling, I say, these are henceforth to be enumerated among the causes of Diphtheria by those who contend for the unity of all diseases presenting these exudations. No wonder that those who hold this opinion feel compelled to speak of idiopathic & traumatic Diphtheria, & to refer to the analogy of Erysipelas. But the analogy daes not carry us far. We are entitled to ask for proof that contagion ever results from these traumatic cases. It is well known that traumatic Erysipelas is most contagious and that under certain conditions it spreads through a ward; I know of no case where any similar result has happened from membranous laryngitis the result of an accident. Some further proof may well be demanded before so general & sweeping a conclusion can be accepted, based, as it is, on the mere appearance of a membrane on the one part.

But having now treated of the age of those subject to these affections & the difference of the parts generally affected, let us take some of the symptoms which do, or do not, accompany either form.

Albuminuria. Sir William Jenner stated last year at the Royal Medical & Chirurgical Society that among

the reasons which had induced him to change his opinion was this „Albuminuria, a symptom held to be characteristic of diphtheria he had seen in genuine „croup“ — croup coming on with catarrh, with no exudation in the pharynx. He had seen several times in such cases the urine loaded with albumen*)“.—

I may be excused if I feel some diffidence in venturing to criticize Sir W. Jenner's argument; but in the first place, his definition of croup & of diphtheria is not complete. It is again diagnosing by the membrane in situ only. Most authorities agree that Diphtheria does occasionally arise in the larynx & is sometimes confined to these parts. Mr. Squire (loc. cit. P. 385) says „it may commence in the air passages by independent centres of deposit;“ Dr. West**) seems to be of the same opinion; Sir Ww. Jenner in the***) lecture on Croup first mentioned says „It is beyond question that true diphtheritic inflammation may be limited to the larynx. †It may happen that the disease commencing in the bronchi and the trachea advances in the reverse direction to the larynx.“ When we, however, who find great difficulty in considering these affections to be identical, find albumen associated with one class & absent in others we feel justified in diagnosing & naming by the assistance of so important a symptom. Not that it could be considered surprising if exposure to cold & damp — the most frequent determining cause of Croup— should also in some cases lead to albuminuria. The wonder

*) Discussion of Dr. Semple's paper at the Society. Lancet. November 13. 1875.

**) Diseases of Infancy & Childhood. Dr. West 6th Edition. P. 426.

***) Lancet Jany. 2. 16. 1875.

†) Semple's translation of Guersant on Croup. New Sydenham Socy. P. 216.

is that it should not more frequently occur. — I have never met with it — Sir W. Jenner's experience must be enormous, he only says "he had seen it several times." — But the vast majority of cases of the pharyngeal affection present this symptom. In the case read by Mr. Parker after a scald, albumen was found in the urine of the bladder. But are we to found a theory on this single case? Dr. West says: „I have not met with any case of Diphtheria in which blood was present in the urine.“ (Loc. cit. P. 442) — Mr. Squire says: „Albuminuria is not persistent after recovery and does not result in anasarca.“ Professor Oertel, however declares *) „Demme fand in schwer verlaufenden Fällen constant neben den Eiweiss Blutkörperchen und Fibrin-cylinder in einer Anzahl dieser Fälle trat Höhlenwassersucht und Anasarca auf.“ — The disagreement is complete. I am fortunate in having in my short experience met with two complications which are by our writers considered so rare. In case „2“ the hæmaturia was considerable, & it persisted for a period of just two months. In Case „7“ Anasarca was general and the child died comatose with every appearance of uræmic coma. — But are we to amend our theories or seek for new definitions in consequence of two uncommon cases? Our acquaintance with the subject of Albuminuria in connection with these diseases is too recent & incomplete to enable us to generalise from any such isolated facts. Why does albuminuria generally follow pharyngeal exudation & rarely laryngeal? What alterations in the secretion are found in the one case & the other? When albumen is present in either case, are blood corpuscles present & casts? The examination for albumen is less frequently made in the surgical wards than in the medical & if present in cases of exudation from a local irritant, albumen is likely to be overlooked unless

*) Ziemssen's Handbuch. Vol. II. article Diphtherie. P. 580.

recent discussions having drawn attention to the point the examination is made in every case. Professor Oertel also says: Loc. cit. p. 580. Die Erkrankung der Nieren zu einer Zeit, wo der diphtherische Process noch auf kleinere Schleimhautbezirke sich begrenzt, weist auf eine rasch sich entwickelnde Infection hin, und unterscheidet zugleich die Diphtherie in zweifelhaften Fällen von ähnlichen exudativen Entzündungsformen (Croup).

Paralysis. Sir Ww. Jenner gave on this occasion (Nov. 13. 75) as his second reason that he had seen a surgeon in attendance „on a case of Diphtheria contract laryngo-tracheal membranous disease, and, moreover in that case the paralytic symptoms followed. The fact that paralytic symptoms never or rarely followed Croup was easily explained, because as soon as Diphtheria attacks the larynx recovery is infinitely rare.“ — It may be fairly asked of those who maintain the duality of these affections that they should define each clearly. The definition given of diphtheria is shortly „Membranous exudation of the pharynx & air passages, frequently contagious in origin, accompanied by albuminuria in many cases, asthenic in form & followed in many cases by paralytic symptoms.“ Now to such a description the case above given clearly answers. But Sir Ww. Jenner, one feels, knows this as well as anyone, & is equally well aware of the various other affections of glands etc. relied upon for diagnosis. He has for many years held that these diseases are distinct one from the other. A relation of some of the cases on which so notable a change of opinion has been grounded would certainly have done more to give weight to his opinion & enforce its acceptance than the mere reasons given above. He states that „Croup is rarely followed by paralysis because recovery after Diphtheria of the larynx is so rare.“ It is surely fair to object to this that it is assuming the very point at issue. But to take accurate

figures the deaths from croup in the 3 years 1859. 60. 61 for each quarter are given by Squire as under: (Loc. cit. P. 241).

	1 st . quarter	2 nd . quarter	3 rd . quarter	4 th . quarter
1859	132	103	80	81
1860	117	80	105	169
1861	236	190	170	252

(and in these returns „Laryngitis“ is not included by him). A total in the 3 years of 1115 deaths from Croup. Sir Ww. Jenner considers it very fatal. So it no doubt is. Squire (P. 260) quotes Jurines opinion that one case in 10 is fatal & says that others place the mortality as high as $\frac{1}{2}$, $\frac{1}{3}$ or $\frac{4}{5}$. But he adds that probably in these cases of high mortality cases of Diphtheria have been included. However if we take a mortality of $\frac{4}{5}$ even (& I do not believe that it now a days reaches anything like that percentage) we get 223 recoveries out of every 1100 a sufficient field for observation on this point, & if paralysis followed Croup as it follows Diphtheria would the fact long remain unrecorded? Limited as my own experience has been, I have had one well marked case of pharyngeal paralysis (Case 7) and as a student I remember to have seen two cases of paralysis of the limbs after Diphtheria. Sir William Gull relates an instance very similar to my case 7 in the Lancet for 1859 (Vol. II. P. 539); in the same year (Vol. II. P. 57. 1850. Vol. II. P. 4) he attributes this to the local effect of the affection on the nerves of the neck, & if this cause be admitted we should at once expect to find pharyngeal or some other form of local paralysis resulting frequently in laryngeal exudation, if the affections are in any degree one. But the general paralysis frequently met with requires a deeper cause to be discovered. But again, if these diseases are identical, & if children from their age are specially subject to the laryngeal form of exudation, should we not expect to find them very generally suffering from some

form of paralysis. They do suffer from paralysis in diphtheria; they are, as experience tells us specially liable to such disorders of innervation; & I have notes of cases of infantile paralysis brought on merely from exposure to cold & damp. Why do we find them exempt when the affection is laryngeal? If we place the recoveries but at 10 per cent should we expect to find an equal number escape after Diphtheria.

If, however, we hereafter see any reason to be convinced of the identity of these diseases, I should yet consider it of great value to be able to say at the onset, "this child will, if he recovers, recover completely; this other child may have paralysis, he runs that risk." I wish here to meet an objection that has been made, viz; that we must not diagnose a disease by its sequelae. I cannot quite agree as to that. Our diagnosis should rest on something else, it is true, but to give a case in point. I lately saw a family of 7 children, 4 of whom had appeared one morning with a rash out, principally over their limbs, & in a less degree over their chests. No premonitory symptoms, no sickness, no headache, one slight sore throat, one red tongue, two coated tongues, nothing typical. Good appetite & spirits; skin not very hot. Temperature from 100.4 to 102. Fahrenheit. Pulse averaging 100. The rash was on each punctate, each spot separate, but arranged in somewhat the crescentic manner seen in measles, the finger passed over the spots detected them. The nose & eyes were not running or in any way affected. I could not believe that 4 children would at one time show the appearances of one of the exanthemata & yet all look & feel well. As a precaution, however, the parents were warned. At the end of a fortnight one of them began to peel, the others followed suit & the little girl who had the rash most severely peeled the skin off her hands & arms in flakes. A week after, the younger nurse who waited on them was removed

to the Fever hospital suffering from a rather severe attack of Scarlet fever & very bad sore throat. Surely in this case the sequelae & the infection made clear a case in which, rightly or not, I had considerable doubt.

Infection. On one point all are agreed, and it is, that in many cases Diphtheria can be traced to direct contagion. I have given a case which fixed it very painfully on my mind & there was evident infection in cases, 7.8. The mode in which the poison acts is far from clear.

Inoculation has failed in several instance to produce any result. Dr. Harley*) failed to inoculate some dogs with the morbid matter, I should rather say the membranous exudation, for this is important. Trousseau**) relates how he punctured his arm, tonsil & velum palati with lancets charged with the membrane, but without effect. If inoculation, however, has hitherto failed to produce the disease, it has, unfortunately been but too easily given to medical men in attendance on the sick; & this by an accident to which medical men must always be specially subject. Bretonneau***) relates at length the case of M. Herpin, who received some of the sputa of a child, whose throat he was cauterising, on his nostril. Although paralysis ensued he recovered. He also†) refers to the case of Dr. Gendron, who was infected on completing the operation of tracheotomy. He recovered. M. Valleix was not so fortunate. He received in his mouth some saliva coughed out by a little girl he was attending. The child recovered. M. Valleix died in 48 hours††). Sir Thos. Watson refers

*) Medical Times and Gazette vol. XXXVIII P. 641. Pathological Society.

**) Semple's work before quoted. P. 240.

***) Semple's work. P. 181.

†) ditto P. 183.

††) Watson's Lectures on the Practice & Principles of Physic. 5. Edit. P. 893.

at the same time to a case given by Trousseau. The surgeon put his lips to the tube placed in the trachea to suck out some blood & in 48 hours he was dead. Yet not even this effect suffices to distinguish it from Croup! In the case of scald given by Mr. Parker the trachea was more than once cleared out by suction through a catheter; & I think most surgeons in doing so would feel, that they ran but little risk in a case of membranous exudation from such a cause, but the case is very different in Diphtheria, as we have seen. It is argued that we should no more separate a single case of Croup from Diphtheria, than should a single case of scarlet fever be separated from other cases of scarlet fever because it does not spread. And the argument is so far sound as this: that when medical men shall find themselves in a position to say of a case of scarlet fever what they now think they can say of a case of Croup, viz, that it will not spread; and are able to separate such cases of fever from others, as they now separate Croup from Diphtheria, it will be time to give a distinguishing name to them, as we now do to Croup.

In each of the cases of Croup which I have given, (1. 4 5. 6) no precaution whatever was taken, although in 4. 5. 6. each child affected was but one of a family of others frequently about him; yet no sore throats resulted, no croup appeared in any of the others. Nor had there been any previous croup or sore throat in the houses.

In the cases of Diphtheria however (2. 3. 7. 8. 9. 10) we have an illustration of the infection of the disease Nro. 8 a child takes it from her sister No. 7. In No. 10 a most painful instance is seen of the violence of the infection.

I believe that it is with the contagion of Diphtheria as with other contagions; the contagious matter must find a nidus, a victim susceptible to its influence. In the case of scarlet fever before referred to, 3 other children escaped—it was perhaps a little strange that the three who did

escape were boys, while all the girls suffered. Such anomalies we frequently meet with. The question is not whether cases of Croup sometimes do not spread, but whether they ever spread. Have we ever seen croup in one of a family produce croup in other members of the family, which is to be proved if its contagion is to be proved; and have we ever seen croup under similar circumstances produce in others the symptoms which are known as Diphtheria, which must occur & be proved if these diseases are identical?

Glandular swellings. I do not consider that great diagnostic importance can attach to the glandular swellings met with in Diphtheria, & absent in croup. I consider them as signs rather of the part affected, than of the constitutional disease; being different in this regard to Albuminuria & paralysis of the extremities & failure of the heart's power which I look upon as evidence of systemic infection. Let it be taken for what it is worth that they are present in Diphtheria, absent in Croup. I have seen them in some forms of sore throat, which I had no reason to imagine had anything to do with Diphtheria. I saw three summers ago in Kensington many cases of an epidemic sore throat accompanied by great depression; difficulty in swallowing; swelling of the tonsils, no membranous effusion; no difficulty of breathing; great swelling of the glands at the angles of the jaws which in the majority of my cases led to abscess, which I had to relieve by puncture. Dr. Pearson who read a paper on the epidemic before the Medical Society of London asked most of his neighbours for particulars of their cases: the results can be found in his report *). He states that he found albumen occasionally, I did not in any case.

*) Lancet. January 10th 1874. „On an epidemic of sore throat“.

But leaving particular symptoms, let us take the general state of our patients when affected by these diseases. Three points are here intimately connected. The sthenic or asthenic condition accompanying the disease; the effect of treatment, whether stimulating or depressing; & the result when recovery or death ensues.

Cause of Death. Sir Thos. Watson relates *) two cases of death from Diphtheria which illustrate one of these points. A boy 10 years old had had Diphtheria mildly. The exudation on the Pharynx was slight; swallowing was easy; the general symptoms, except that the pulse was feeble, were trifling; on one day only was a trace of albumen found in his urine. The boy was deemed by his parents convalescent, when vomiting set in & the weak beats of the heart began to diminish in frequency. There were no other grave symptoms except the vomiting. Notwithstanding the free use of stimulants the pulse fell to 32 and presently to 24 beats in the minute and the patient died apparently from the cessation of the heart's action. In another case Mr. Jay noted a fortnight after the outbreak of the disease stertorous breathing, diminution of temperature with free perspiration, return of fluids through the nose, with so great a fall in the frequency of the pulse that, for some time before death, there were not more than 16 beats of the heart in the minute.

Although this is more directly applicable to the mode of death, the last of the three points I have just mentioned, we find the stress laid on the weak heart, & we see the heart gradually ceasing to perform its work although the blood is ærated, and the passage to the lungs free. Do we ever see such cases in Croup? Have we not all seen them in Diphtheria & do we not dread them, and from the first pre-

*) Loc. cit. 895.

pare to meet them by stimulating treatment? In the case I have given as case 3. a big, strong-looking man was unable to sit up for more than half an hour without feeling faint, & this in spite of the exhibition of stimulants. In case 2 the weakness was throughout alarming. In all the cases, food, tonics, & stimulants were given; the only measure of quantity being the amount the patient could take. In Croup on the other hand emetics begin the treatment; & in spite of the necessarily ensuing depression, a treatment, which can only result in the same effect, is continued. Food is given, stimulants if thought necessary, but mercury, antimony, steaming to promote excretion & soften the air passages & skin; leeches, should need be, are all used; & any one who, has so seen them used, will say with the best effect. Yet who has seen a case of death resulting from such a cause as in those related above *)?

„As a general rule it may, I think, be said, that the laryngeal affection, which is so grave a source of peril does not so frequently occur in cases where the constitutional symptoms of Diphtheria are most severe as in those in which they wear a milder form the symptoms that attend the disease are invariably those of depression, and of depression which, like that attendant on the worst forms of puerperal fever, is by no means constantly proportionate to the local mischief. The child, feeble yesterday, becomes still feebler today, & often, without any actual increase of deposit, sometimes even in spite of its diminution . . . his repugnance to take food goes on increasing until at length he positively refuses all nourishment. This refusal of food, whether in childhood or in adult age, is a very unfavourable occurrence.“

Now taking the two cases detailed from Sir Thomas Watson's work with Dr. West's description I ask, is it

*) Dr. West. loc. cit. 432.

possible to draw a description more opposed in every way to what we see in Croup? and if putting away names we for a moment only consider the presence of exudation & give the quotation above as a description of the usual state of a patient suffering from membranous exudation, would not one be justified in exclaiming — but I have seen laryngeal exudation universally connected with a high state of arterial tension until the aeration of the blood has been seriously interfered with. I have found such cases relived by emetics & depressants. — I have ever found a constant relation to exist between symptoms & effusion, whether judging from the expectoration or vomited matter in life, or the membrane found after death & with the disappearance of the local symptoms I have invariably found perfect recovery set in; if there has been any thing left, it has been in the lungs, & could be traced directly to the local impediment; but no constitutional failing such as you have described has happened in my experience unless you are speaking of what is known as Diphtheria. Would not this be the reply? and can we wonder at it. According to Sir Thos. Watson, who holds the identity of these affections, Dr. Johnson has correctly pointed out that the error involved in the contrary opinion „has been perpetuated by the fact, that simple inflammatory Croup is a far less fatal disease than diphtheritic croup. Most cases of the former recover when early & judiciously treated; while of the latter by far the greater number die. Therefore after death with croupy symptoms false membranes are more frequently present than absent“ *). But, I wish to ask, what is this but the reiteration in other words of the assertion that ‘membranous croup is diphtheria’ an opinion Dr. Johnson is known to hold. Simple laryngitis is less fatal but more common than membranous laryngitis, we agree; we dis-

*) Sir Thos. Watson. Loc. cit. p. 902.

agree in this, that I am arguing that some forms of membranous laryngitis may by their symptoms & course, the results of treatment of a most opposite nature, & the mode of recoery or of death be clearly separated from other cases.

But what if we do meet now & again cases which it is impossible to classify, without the help of sequelæ & perhaps not then? Let us for a moment turn to continued fever. The points of difference between typhoid (or enteric) fever & typhus fever have been so clearly marked out that most students are able to diagnose a case of Enteric from Typhus after having seen a few cases — generally it is so, but it is also true, that occasionally we meet with cases which it is not possible to classify. Enteric without spots we may recognize. Typhus with typhoidal stools may not deceive us. But the fever may slay at the onset or before symptoms are developed. Some abnormality or intercurrent influence may modify the type. Occasionally, the observer unequal to his task, may not read what to another would prove an open book in clear type. I fear this is too often the case or we should not see week after week in the Registrar General's reports so many deaths from 'simple continued fever —' so many unrecognized cases, so many reproaches to our power of diagnosis. Yet in spite of this a recent publication *) has been received with almost universal surprise & a general feeling of regret that an eminent man should lend the authority & weight of his name to the opinion that these fevers are one & the same, that no reliance can be placed on their symptoms; that one form may merge into the other at any period of its course. What is this but the very discussion we are engaged in transported into the domain of I ever? If we take any group

*) Lectures on fever by W. Stokes. M. D. F. R. S. Regius Professor of Medicine at the university of Dublin. Physician to the Queen. London 1874.

of diseases such as the continued fevers; or the diseases we are now engaged on. (which are but a small part of all the inflammatory affections of these parts) & contemplate them as a whole we shall undoubtedly have to acknowledge that while many types stand out clear & defined like the primary colours in the rainbow, just in the same way as these colours blend do the types merge one into the other until the features common to each become so united that it is impossible to say to which class the predominance belongs. The human body is not a geometrical figure, subject to unvarying mathematical laws, but a highly complex organism, each individual with his acquired or inherited idiosyncracies, & liable to be variously affected by the ever changing surrounding influences. Theories are interesting & we owe much to theorists, but let every clinical observer declare how much he owes to the early recognition of a type at the bed side, and to a differential plan of treatment founded upon it.

The Exudation. This remark must also be applied to those pathologists who hand us a larynx with membrane and ask us to say whether it came from Croup or Diphtheria, or whether it was the result of the irritation of a scald or foreign body. It is much to be desired that we could see a difference in such cases, & science has made such strides in the last quarter of a century that we may not be without hope in this respect. Indeed Squire asserts (*loc. cit.* P. 259) that „the false membrane of Croup differs from that formed during the specific inflammation of Diphtheria, both in its chemical & physiological relations; it is not simply fibrine, but consists of effused lymph, in which the presence of albumen can always be detected; it is not the result of an interstitial change in the substance of the mucous membrane, but of an exudation from its vessels & glands, so that the structure of the membrane producing it remains singularly free

from pathological injury.“ — Can this last fact suggest in any way why paralysis is so much met with after the one class of cases. Sir Wm. Jenner points out that the most frequent sequelae are affections of parts supplied by the par vagum even to the failing action of the heart. Indeed Sir Wm. Gull in a paper already alluded to (Lancet 1858. Vol. II. P. 4.) distinctly puts this interstitial change as a probable cause. If in the cases classed as Diphtheria the mucous surfaces are found to be so much more deeply involved, & hence to lead to the irritation of the pneumogastric which is evidenced by the symptoms spoken of above, are we not approaching a rational understanding of the differences which appear so perplexing. In cases of burn & scald of the larynx however when the deeper parts are frequently involved we do not to my knowledge meet with symptoms to be attributed to irritation of the pneumogastric, unless it be vomiting. Analogy however would have led us to expect it when we recollect that burns lower down so frequently lead to abdominal ulceration.

Mikrococcus? I have no experience of the various microscopic growths or parasites said to be connected with the disease. Oertel goes into the question at great length & attributes to them the infecting power. I personally incline at present to the opinion that such growths, bacteria & the like are the accompaniments of membranes & exudations of these parts, of herpes & thrush, & to this opinion in some degree I consider Oertel commits himself when (P. 630) he alludes to the appearance of various parasitic forms in simple catarrhal angina.

Cutaneous Diphtheria. Neither have I any experience on the subject of cutaneous Diphtheria. I have never seen a case. Dr. West says (P. 349): „It so chances that in the whole of my practice I have only four times met with cutaneous diphtheria judging by the statements of French physicians, my experience would have

been widely different if the scene of my observations had been on the other side of the Channel instead of in England." — It is at least a matter of doubt whether many of the cases of cutaneous diphtheria described as occurring in France in merely overcrowded hospitals and without proof of any infection from the ordinary form of the disease are not cases of hospital gangrene. It is a point worth deciding whether cutaneous diphtheria ever results from the effects of exposure to any possible contagion from croup — whether arising spontaneously or from injury.

T r e a t m e n t.

The difference in the lines of treatment followed has probably been sufficiently indicated in the cases I have given. I need here only add some remarks of a general nature.

In Diphtheria I have seen such favourable results ensue from the use of a solution of Permanganate of Potash above described, that I would at once use it to any patch of membrane within sight. A great advantage of local medication used by means of the Spray apparatus is that the fluid is driven with a notable amount of force against the affected part thouroughly cleansing it, while at the same time the fluid is so pulverized that it searches out every fold of mucous membrane about the fauces, is easily borne by the throat without causing nausea, & in its almost vapourized condition probably reaches the larynx or exerts some influence there. The voice is immediately improved by it in a marked manner, & breathing made easier, probably by its having some solvent power on the membrane, & inducing some contraction of the tonsils & swollen parts. The relief is so great that often the nurse is asked to repeat the application before the appointed time. With very young children, again, who cannot be made to understand to keep the mouth open, the tube being made of vulcanite with a blunted round end can be well introduced

into the mouth without fear of injury & the bag can then be worked. On examining the throat afterwards it will generally be found that the tonsils have been reached. Should I however in any particular case not be satisfied with the use of the permanganate I would use some other disinfecting solvent with the same apparatus, or applied with a mop or brush.

Internally I have reason to place as much faith in Iron in these cases as in Erysipelas. I consider it essential. Quinine, Chlorate of Potash or whatever else may be thought advisable may be added to the iron. I have always been most careful in the use of purgatives, fearing their depressing action. Food should be unlimited & whatever the patient can swallow of the most nourishing kind should be given amply. Sickness should be most carefully controlled. Sucking ice will often ease the throat & check sickness. Food under such circumstances should be given in frequent but very small quantities. Nothing is better than milk. The pulse will guide the amount of stimulant to be given, this is sometimes enormous. Failure of the heart's action should be most carefully watched for; in all cases of slow pulse a warning should be given to patient & to nurse that the recumbent position should not for a moment be quitted. After the fatal result in Case 7. I regretted I had not given nourishment under Chloroform. I should try it in a similar case were there no vomiting.

In Croup, an emetic should at once be given, vomiting with young children always relieving the breathing & clearing the air-passages. A screen should be placed round the cot with some arrangement of blankets or curtains to confine the steam which should be conducted to the little chamber so formed. It is not so much a hot as a moist & warm atmosphere that we desire round a patient under the circumstances & this should not be left until tracheotomy has been performed, it may often obviate the neces-

sity for that operation if begun from the first. A thermometer hanging near should be often consulted & ought to stand at about 70° Fahrenheit. The bed covering should be light. I order antimony alone or with ammonia if any bronchial signs indicate necessity for an expectorant. Senega is invaluable when the cough has loosened. The bowels should be freely relieved by a calomel or jalap purge. I order milk to be given in abundance & should it be necessary, the child appearing much depressed by the plan of treatment followed, I give a little brandy. For a child of 6 or 8 months a teaspoonful of brandy is mixed with 9 of sugar & water & a teaspounful of this mixture given every hour or two hours as may be thought necessary.

Traumatic cases. I have no experience of Croup induced by burns or scalds but from my acquaintance with such injuries in other parts of the body, I would be very careful how I carried out the antiphlogistic plan of treatment recommended by Mr. Gray. I have always found such cases in children or adults need opium & stimulants & I would counteract the local danger by an early resort to tracheotomy.

Tracheotomy. If I have not alluded to Tracheotomy it is that beyond the case mentioned as case 1 I have no personal experience of it. I have seen the operation done for other reasons & may instance a case in which a man took a quantity of liquid ammonia. He was not saved by the operation, but the impression strongly made on me was the necessity for having recourse to the operation early. Delay lost Case 1 as it has done many others. Beyond this it saves the patients strength & frequently allows the withdrawal of membrane; the operation itself is never fatal & the wound always closes readily.

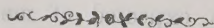
For the same reason, want of experience of a personal nature, I have not touched on morbid anatomy; believing that what is expected of me in a paper like the

present is personal experience & not a mere recapitulation of the opinions of other authors.

Conclusion. To conclude then I would maintain on a view of this evidence, that membranous exudation may arise from several causes; may be accompanied by symptoms sufficiently distinct to enable us to give the affections accompanying such exudations distinct names, & to regard them as distinct diseases; such affections indeed either remain a local or become a general disease. The most important point, however, to bring clearly out is this, that we do not diagnose from one symptom such as the position of the membrane, but from the complete picture presented by the disease, nor do we diagnose from its non contagiousness, we say from the first, this case will not prove contagious; nor need we wait for sequelæ or death, we prognosticate as to both, in the one expecting the patient to recover completely, in the other fearing death from the local affection, not feeling secure when that is past, that the constitutional effects may not master him & should he escape these that he may perhaps still suffer from some nervous affection.

The division of a new genus into its component species is effected after the study of each individual as it is met with, & this study proceeds until in course of time we feel able to refer each new individual to one of the groups we have made. This is what we, who hold that these diseases are not identical, claim to be able to do, & if we occasionally, meet with a case of a bastard character, which we cannot refer to any class, we but look on it as further evidence (to carry out the simile) that nature constantly delights in eluding any laws we may lay down for her.

July 7th 1876.



THESEN.

I.

Gegen Uterinblutungen unmittelbar nach der Geburt ist die Injection von Eisenchloridlösung in den Uterus sehr zu empfehlen.

II.

Croup und Diphtheritis sind nicht identisch.

III.

Die Arnica ist in der Therapie der Pneumonie verwendbar.

Verfasser, katholisch, am 15. April 1843 zu Dublin geboren, Sohn des Rentner Charles Parr und dessen Gattin Elisabeth, geb. Ryan, besuchte 1852–1857 eine französische Schule in Boulogne sur Mer, war dann in einem Pensionat in Feldkirchen (Vorarlberg) und schliesslich im Stoneyhurst College (England). 1863–1868 studirte er am St. George's Hospital, London, Medicin. 1865 bestand er das Examen in Physiologie und Anatomie bei dem Royal College of Surgeons of England, 1868 wurde er Member of the Royal College of Surgeons of England, 1869 Licentiate of the Royal College of Physicians of London, 1872 Fellow of the Obstetrical Society of London. Im Jahre 1868 und 1869 leistete er als Hausarzt im St. George's Hospital Dienste. Seit dieser Zeit practicirte er in London. Am 11. August 1876 bestand er das Examen rigorosum in Marburg.
